<u>Amendments to the Claims</u>:

Please add new Claims 18 to 35, and amend Claims 1 to 17 as shown below. This listing of claims will replace all prior versions and listings of claims in the application:

<u>Listing of Claims</u>:

1. (Currently Amended) A coreless AC linear motor, comprising:

a magnet assembly forming a magnetic gap ~~(3);~~ ;

a can ~~(10) including~~, said can further comprising a coil housing section ~~(10F) having~~forming a deep groove ~~(10B) formed by gouging out material~~;

a plurality of coreless coils ~~(5)~~ inserted into the deep groove and arranged in a straight line inside the magnetic gap; and

a cover body ~~(11)~~ for sealing the can.

2. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein the material is stainless steel.

3. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein the magnet assembly includes parallel rows of field magnets ~~(31, 32)~~.

4. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein the magnet assembly includes a pair of parallel side yokes ~~(1, 2)~~ to which the rows of field magnets ~~(31, 32)~~ are attached.

5. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein each coreless coil is overlapped on another coreless coil.

6. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, further comprising cooling pipes ~~(7)~~ passing through the coreless coils.

7. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 6, wherein the cooling pipes come into contact with inner surfaces of each coreless coil.

8. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, further comprising a plurality of spaced cooling pipes ~~(7)~~ extending through the coreless coils parallel to each other.

9. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 8, wherein the plurality of cooling pipes come into contact with inner surfaces of each of the plurality of coreless ~~coil~~coils.

10. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein the can includes a flange section ~~(10A)~~ which is wider than the coil housing section and joined to the cover body.

11. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 10, further comprising an O-ring ~~(12)~~ for sealing between the can and the cover body in an air-tight manner, wherein the flange section ~~having~~further comprises a seat ~~(10C)~~ for receiving the O-ring.

12. (Currently Amended) The coreless AC linear motor of ~~claim~~Claim 1, wherein a plurality of coreless coils are fixed to the can using resin or adhesive ~~(3)~~.

13. (Currently Amended) A method of manufacturing a coreless AC linear motor, comprising~~: a step of gouging out material for a can to form a deep groove (10B);~~ the steps of:

~~a step of arranging a plurality of coreless coils (5) in a straight line;~~

gouging out material for a can to form a deep groove;

arranging ~~a step of forming the~~ plurality of coreless coils ~~into a flat plate-shaped block using resin or adhesive (3); and~~ in a straight line;

~~a step of~~ forming the plurality of coreless coils into a flat plate-shaped block using resin or adhesive; and

inserting the flat plate-shaped block into the deep groove of the can.

14. (Currently Amended) The method of manufacturing the coreless AC linear motor of ~~claim~~Claim 13, wherein the material is stainless steel.

15. (Currently Amended) The method of manufacturing the coreless AC linear motor of ~~claim 13,~~Claim 31, wherein the gouging step includes a step of machining a deep groove using an electrode tool.

16. (Currently Amended) The method of manufacturing the coreless AC linear motor of ~~claim~~Claim 15, wherein the gouging step includes a step of rough machining a deep groove using an end mill.

17. (Currently Amended) The method of manufacturing the coreless AC linear motor of ~~claim~~Claim 15, wherein the gouging step includes a step of rough machining a deep groove using a drill.

18. (New) A coreless AC linear motor, comprising:

a can assembly, said can assembly further comprising:

a can, said can having a T-shaped cross-section and further comprising:

a U-shaped coil housing section forming a deep grove within; and

a flange section forming a flange recess and a flange O-ring seat;

a coil assembly disposed in said can, said coil assembly further comprising

a plurality of flat three-phase coreless coils, said plurality of coils overlapping each other;

a first manifold, said first manifold comprising:

a vertical manifold cooling medium inlet passage; and

a first brim section, said first brim section connecting said first manifold to the flange recess;

a second manifold obverse to said first manifold, said second manifold further comprising:

a vertical manifold cooling medium outlet passage; and

a second brim section, said second brim section connecting said second manifold to the flange recess; and

a plurality of cooling pipes in physical communication with and passing through each of said plurality of coreless coils, said plurality of cooling pipes connected to said first and second manifolds, said plurality of cooling pipes distributing a cooling medium from the manifold cooling medium inlet passage to the manifold cooling medium outlet passage;

a hardened epoxy resin encapsulating said plurality of coreless coils, said first and second manifolds, and said plurality of cooling pipes;

a cover body affixed to said flange section using a plurality of bolts, said cover body forming a recess on an interior portion of the can assembly, a cover body O-ring seat, a resin injection hole, a terminal introduction hole, a cover body cooling medium inlet passage in physical communication with said manifold cooling medium inlet passage, and a cover body cooling medium outlet passage in physical communication with said manifold cooling medium outlet passage, said cover body further comprising a terminal block housed in the recess;

an O-ring in physical communication with and between the flange O-ring seat and the cover body O-ring seat, said O-ring sealing said can to said cover body in an air-tight manner;

an inlet joint in physical communication with the cover body cooling medium inlet passage;

an outlet joint in physical communication with the cover body cooling medium outlet passage;

a plurality of lead lines in physical communication with said plurality of coils, said plurality of lead lines passing through said terminal block to an exterior side of said cover body obverse to the recess;

a cover body block affixed to said cover body in an air-tight manner using an O-ring, said cover body block forming an introduction passage adjacent to said terminal introduction hole;

a current introduction terminal affixed to said cover body block in an air-tight manner using an O-ring, said current introduction terminal including U-, V-, W- and E-phase terminals; and

a vacuum flange in physical communication with and between said cover body block and said current introduction terminal.

a magnet assembly, said magnet assembly further comprising:

first and second side yokes, said first and second side yokes arranged parallel with each other;

a center yoke connecting said first and second side yokes; and

a plurality of permanent magnets affixed to facing portions of said first and second side yokes and forming a magnetic gap therebetween, adjacent ones of said plurality of permanent magnets having alternating magnetic poles.

19. (New) A coreless AC linear motor according to Claim 18, wherein each of said plurality of cooling pipes has an outer diameter of 4 millimeters, a thickness of 0.5 millimeters, and a length of 250 millimeters.

20. (New) A coreless AC linear motor according to Claim 18, wherein adjacent ones of said plurality of cooling pipes are separated by 0.5 millimeters.

21. (New) A coreless AC linear motor according to Claim 1, wherein said coil assembly further comprises first through seventh cooling pipes.

22. (New) A coreless AC linear motor according to Claim 18, wherein said plurality of flat three-phase coreless coils are arranged in U-phase, V-phase, and W-phase, in a movement direction.

23. (New) A coreless AC linear motor according to Claim 18, wherein said can is 8 mm thick.

24. (New) A coreless AC linear motor according to Claim 18, wherein said first and second manifolds are comprised of austenitic stainless steel.

25. (New) A coreless AC linear motor according to Claim 24, wherein the austenitic stainless steel is defined by Japanese Industrial Standards SUS300.

26. (New) A coreless AC linear motor according to Claim 24, wherein the austenitic stainless steel is defined by Japanese Industrial Standards SUS200.

27. (New) A coreless AC linear motor according to Claim 18, wherein the deep grove is 8.5 millimeters wide, 70 millimeters deep, and 280 millimeters long.

28. (New) A coreless AC linear motor according to Claim 18, wherein the coil housing section is 12.5 mm wide, 80 millimeters deep, and 296 millimeters long.

29. (New) A coreless AC linear motor according to Claim 18, wherein the coil housing section has a side wall thickness of 2.0 millimeters.

30. (New) A method of manufacturing a coreless AC linear motor, comprising the steps of:

winding approximately seventy-six turns of enamel-plated copper wire of ϕ 0.44 millimeters on a temporary frame having a cross-section of 17 millimeters × 50 millimeters;

removing the temporary frame, to form a plurality of coreless coils, each of the plurality of coreless coils forming a through-hole;

overlapping the plurality of coreless coils with each other;

placing a plurality of cooling pipes through each of the through-holes, the plurality of cooling pipes in physical communication with the plurality of coreless coils;

connecting a first end of the plurality of cooling pipes to a vertically-extending cooling medium inlet in a first manifold;

connecting a second end of the plurality of cooling pipes, obverse to the first end, to a vertically-extending cooling medium outlet in a second manifold;

placing the plurality of coils, the plurality of cooling pipes, and the first and second manifolds in a mold;

filling the mold with an epoxy resin;

hardening the epoxy resin to form a resin block;

finishing the resin block;

inserting the resin block into a U-shaped coil housing section of a T-shaped can;

sealing a flange section of the can to a cover body in an air-tight manner by seating an O-ring in O-ring seats formed in the flange section to the cover body;

filling additional epoxy resin into the can via a resin injection hole in the cover body;

securing the cover body to an O-ring seat formed in the flange section of the can using bolts;

connecting the first and second manifolds to a flange recess formed in the flange section of the can, via brim sections;

passing lead lines from the plurality of coils through a terminal block on the cover body;

connecting a first and a second parallel side yoke with a center yoke; and

affixing a plurality of permanent magnets to facing portions of the first and second side yokes to form a magnetic gap therebetween, adjacent ones of the plurality of permanent magnets having alternating magnetic poles.

31. (New) A method according to Claim 30, wherein the first and second manifolds are connected to the flange section using bolts.

32. (New) A method according to Claim 30, wherein the plurality of cooling pipes are connected to the first and second manifolds by silver brazing.

33. (New) A method according to Claim 30, wherein the plurality of cooling pipes are connected to the first and second manifold by tungsten inert gas welding.

34. (New) A method according to Claim 30, wherein the copper wires is of ϕ 0.44 millimeters.

35. (New) A method according to Claim 30, wherein the temporary frame has a cross-section of 17 millimeters × 50 millimeters.